

HANDBOOK OF PHONOLOGICAL DATA  
FROM A SAMPLE OF THE WORLD'S LANGUAGES

A Report of the Stanford Phonology Archive

Compiled and edited by

John H. Crothers  
James P. Lorentz  
Donald A. Sherman  
Marilyn M. Vihman

155 Luo	155 Luo	155 Luo
155 01 p-aspirated [p] <sup>60</sup> [p-glottalized] <sup>60</sup> (free)	[t/s-hacek] <sup>60</sup> [t/s-hacek-glottalized] <sup>60</sup> (free)	51 i
155 02 b <sup>01</sup> [p-lax] <sup>01 61</sup> (free)	13 d/z-hacek <sup>01</sup> [z-hacek-palatalized] <sup>62</sup> (free) [t/s-hacek-lax] <sup>01 61</sup> (free)	52 iota
155 04 t-aspirated [t] <sup>60</sup> [t-glottalized] <sup>60</sup> (free)	14 f	53 e-mid [e-mid-trema] <sup>65</sup>
155 05 d <sup>01</sup> [t-lax] <sup>01 61</sup> (free)	15 s	54 ash [epsilon] <sup>66</sup>
155 07 k-aspirated [k] <sup>60</sup> [k-glottalized] <sup>60</sup> (free)	16 s-hacek <sup>03</sup> (loan)	55 a [a-front] <sup>67</sup>
155 08 g <sup>01</sup> [k-lax] <sup>01 61</sup> (free)	17 m <sup>04</sup>	56 u <sup>14</sup> [u-fronted] <sup>68</sup>
155 10 t/theta-aspirated [theta] <sup>62</sup> [t/theta] <sup>60</sup> [t/theta-glottalized] <sup>60</sup> (free)	18 n <sup>04</sup> [n-dental] <sup>05 63</sup>	57 upsilon <sup>14</sup>
155 11 d/eth <sup>01</sup> [eth] <sup>62</sup> (free) [t/theta-lax] <sup>01 61</sup> (free)	19 n-palatal <sup>04</sup>	58 o-mid [o-mid-trema] <sup>69</sup>
155 12 t/s-hacek-aspirated <sup>11</sup> [s-hacek-palatalized] <sup>62</sup>	20 eng <sup>04</sup>	59 alpha [o-open] <sup>66</sup>
	21 l	60 yod <sup>11 70</sup>
	23 r-flap [r-trill] <sup>07</sup>	61 w <sup>12</sup>
	24 h <sup>08</sup> [x] <sup>64</sup>	
	26 glottal stop <sup>10</sup> (limited)	81 higher-mid-rising <sup>13</sup>
		82 mid <sup>13</sup> [higher-mid] <sup>71</sup>
		83 mid-falling <sup>13</sup> [mid-falling-lower-mid] <sup>72</sup>
155 \$a Luo \$d Nilotic \$e Kenya \$f 800,000 \$g Merritt Ruhlen \$g Jim Lorentz (review)		
155 \$a Gregersen, Edgar Alstrup \$b 1961 \$c Luo: A Grammar \$f (Yale University Dissertation) \$q informants		
155 \$a BREATHY VOICE VOWELS \$A Breathy voice vowels are used along with an overloud stress to emphasize, express indignation, etc. (p.50) A breathy voiced [a] is used to indicate disgust and (slightly different) pain. (p.29)		
155 \$a INTONATION \$A "There are four intonation levels: ...Normal...Raised...Falsetto...Creaky.... Raised [intonation level] generally indicates animation or concern...[and] is also a component of the stylized speech associated with the rabbit in folktales; other components included velarization and over-rounded back vowels..., general 'choppiness,' and a special lax treatment of consonants.... Falsetto [intonation level] is used in folktales in both direct discourse and singing as the stylized way of imitating young girls.... Creaky [intonation] frequently accompanies utterances following hearty laughter.... In folktales it is the major component of the stylized speech of the hyaena." (p.45-46) "Sentences where intonation is hummed (on /m/) occur on a limited number of short phrases in ordinary speech.... There is also a more extensive use of hummed intonations where humming parallels normal sentences with both a segmental nucleus and intonation. Such usage is especially attributed to children, but apparently anyone knows and uses these sentences. The Luos themselves call it...'The language of Chi' where Chi presumably refers to a nonexistent tribe who talk only in such a way.... A comparable use of whistling has been reported (for children), but not exemplified."		
155 \$a LONG NASALS \$A A /nasal.stop/ cluster may be ("but only very exceptionally") realized as a long nasal before a homorganic stop in the following word. (p.21) One example is given which		

shows /eng.g/ realized as [eng-long] before a /g/ in the following word.

- 155 \$a LONG VOWELS \$A Long vowels are analyzed as sequences of identical short vowels based primarily on the fact that complex tone sequences occur on long vowels but not on short vowels. "There are very few [minimal-[JL]] contrasts of single vowels with geminate vowels having a simple tone contour. The only pertinent examples in my corpus involve a morphological boundary as well. [But non-minimal contrasts do occur-[JL]]. Structurally, such long vowels are paralleled by complex vowel sequences with a simple tone contour." (p.22)
- 155 \$a MARGINAL SPEECH SOUNDS \$A "Clicks [t-l-fricative-click]...and [t-dental-click] occur as independent interjections of surprise or doubt." [l-ingressive-voiceless] is used for "ouch." [h-ingressive/t] is traditional at the end of a story. (p.29)
- 155 \$a NASALIZED VOWELS (NON-DISTINCTIVE) \$A Vowels occurring in the environments N\_N, h\_N (where N represents any nasal consonant), tend to be slightly nasalized." (p.27)
- 155 \$a STRESS \$A "In utterances of more than one syllable, features of stress are unpredictable.... High tone is regularly but not exclusively associated with primary stress. Long...vowels or other vowel sequence nuclei with complex tone contours are almost invariably associated with primary stress...; within most utterances secondary stress is a reduced primary stress." (p.20) "Several prosodic techniques are included in the phonemic repertoire to express emphasis, indignation, etc. One of the techniques [is] stressing normally unstressed syllables.... A special contrastive, overloud stress...also occurs, characterized essentially by greater intensity of stress together with breathy vowels and a widening of the tonal contour of the syllable involved." (p.50) Vowel length and high tone are also used for emphasis. (p.50)
- 155 \$a SYLLABLE \$A C(C)V(V)(C)(C) \$A initial CC: /m, k-aspirated/ + /l/; /k-aspirated/ + /r-flap/ \$A final CC: nasal + homorganic voiced stop or affricate. Others in loans. (p.31-33; 22, 25)
- 155 \$a TONE \$A domain of tone: syllable
- 155 \$a VOICELESS VOWELS (NON-DISTINCTIVE) \$A Utterance final vowels, especially after fortis, voiceless stops, are devoiced "in unaffected speech." (p.19) One example is given which shows [o-open-voiceless].
- 155 \$a VOWEL HARMONY \$A Vowel harmony in Luo is based on a tense/lax distinction. There are two mutually exclusive sets of vowels; tense /i, e-mid, u, o-mid/, and lax /iota, ash, upsilon, alpha/. Roots contain either tense or lax vowels. Clitics alternate between tense and lax. When /a/ is in the root syllable (usually the stressed syllable) it co-occurs only with the lax series. When /a/ is a "clitic" vowel it may co-occur with either tense or lax vowels.
- 155 01 \$A Gregersen says "Lenis consonants are as a rule aspirated and voiced." This would translate into [breathy voiced] in Archive terminology. However, Gregersen does not use the standard term "voiced aspirate." It is unclear what is meant. "Finally after a nasal, [lenis consonants] have 'medial' allophones...in free variation with voiced unaspirated ones. For this reason the distinguishing feature between 'b,' 'p' cannot strictly be considered as voice vs. voiceless." (p.28) Gregersen uses symbols for voiceless phones, for example [b] with a circle under it. Also the above comment that voicing is not a distinctive feature only makes sense if the "medial" phones are voiceless. (p.28) [JHC]
- 155 03 \$A /s-hacek/ occurs in loans from Swahili and English. (p.30)
- 155 04 \$A With the exception of a few loan words, combinations of a nasal followed by a stop are always homorganic. Such clusters occur with all five points of articulation. (p.31ff) [JHC]
- 155 05 \$A Gregersen discusses the possibility that [n-dental] occurs as an independent phoneme. It is attested in only one word, and informants "do not remember what it means." (p.30) [JHC]
- 155 07 \$A /r-flap/ is said to have a "spirant allophone," but no details are given. When a sequence of two /r-flap/'s occurs across a morpheme boundary "a strongly trilled" surface phone results. (p.27-28)
- 155 08 \$A "/h/ is a glottal with relatively more friction than initial English /h/; intervocalically, it has lengthened allophones, at times murmured." (p.27)
- 155 10 \$A /glottal stop/ "usually occurs across morphological boundaries and in special emphatic contours...also occurs as a constituent phoneme of specific words." (p.29)
- 155 11 \$A "/yod/ shows morphophonemic alternations with /t/s-hacek-aspirated/ quite regularly." (p.25)
- 155 12 \$A "/w/ does not occur before /o-mid, alpha/ in stressed syllables." (p.31)
- 155 13 \$A In disyllables: "(1) /higher-mid-rising/ tone does not occur in an unaccented syllable except after /mid/ tone; (2) stressed ultimate syllables contain only /mid-falling/ tone; (3) complex tones occur only in a stressed penultimate syllable." (p.40-41)

- 155 14    \$A After /w/ vowels have "neutral lip-rounding," but /u/ and /upsilon/ are "strongly rounded and quite protruded" after /w/. (p.27)
- 155 60    \$A "Finally in the Karachnonyo dialect...(fortis) stops have glottalized and aspirated allophones (apparently in free variation), but other dialects have only aspirated allophones in this environment. Initially in a stressed syllable, and before /l, r-flap, n/, they are strongly aspirated; before another fortis or lenis stop aspiration varies with lack of aspiration.... Unaccented syllables usually have unaspirated stops." (p.28)
- 155 61    \$A Voiced stops and affricates vary freely between voiceless and voiced word finally after a nasal.
- 155 62    \$A Affricates are reduced to fricatives intervocalically. That is, dental affricates /t/theta-aspirated/ and /d/eth/ are realized as [theta] and [eth] respectively. Palatal affricates /t/s-hacek-aspirated/ and /d/z-hacek/ are realized as [s-hacek-palatalized] and [z-hacek-palatalized] respectively.
- 155 63    \$A /n/ is realized as [n-dental] before the dental affricate /d/eth/.
- 155 64    \$A /h/ is realized as [x] word finally.
- 155 65    \$A /e-mid/ is realized as [e-mid-trema] before velar stops.
- 155 66    \$A /ash, alpha/ are raised to [epsilon, o-open] when unstressed.
- 155 67    \$A /a/ is realized as [a-front] before /eng/. (Gregersen's only "description" of this allophone is his use of the digraph "ae" followed by a shaftless, downward pointing arrow. (p.27)
- 155 68    \$A /u/ is fronted before a high front vowel, especially after /yod/. (p.27)
- 155 69    \$A /o-mid/ is realized as [o-trema] after tense /u/ and /o-mid/.
- 155 70    \$A "Vowels before the palatal consonants /t/s-hacek-aspirated, d/z-hacek, n-palatal/ often have a slight high-front off-glide, especially noticeable with /u/." (p.25)
- 155 71    \$A "Stressed /mid/ before /mid/ in another syllable tends toward [higher-mid]." (p.18)
- 155 72    \$A /mid-falling/ is realized as [mid-falling-lower-mid] when unstressed, or directly after /mid/ in a vowel sequence.